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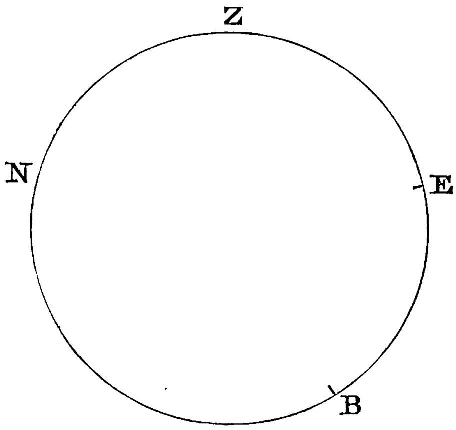
On the Transit of Mercury as seen at the G. V. Juggarow Observatory, Daba Gardens, Vizagapatam, May 10, 1891. By A. V. Nursingrow.

The annexed diagram represents the disc of the Sun at the time of the transit, as visible to an observer at Vizagapatam, for direct image.



Z represents the vertex or the highest point of the Sun's disc.

N the north point.

B the point of first contact. } Both internal.
E the point of last contact. }

The longitude of the Observatory $=5^{h}\ 33^{m}\ 30^{s}$ E; the geographical latitude $=17°42'9''$ north; and the geocentric latitude $17°35'36''\cdot6$.

Clouds were covering the Sun up to $6^{h}\ 10^{m}$. When the Sun became visible, we observed that *Mercury* had advanced some distance from the edge of the Sun's disc. The rest of the transit was seen undisturbed by clouds.

The planet was seen as an intensely dark spot when compared with the nuclei of the solar spots then visible.

We did not find a ring of faint light round the planet, neither did we see a wavy tint of light darting from the upper edge of its disc as we noticed during the transit of 1868, p. 278, vol. xxix., *Monthly Notices of the Royal Astronomical Society*, 1869. The telescope now used is a 6-inch refractor by Messrs. Cooke and Sons, equatorially mounted under a revolving dome.

During the whole transit, the planet appeared as a circular dark spot on the Sun's disc. We did not observe that its contour became pear-shaped just before egress; but on reaching the edge of the Sun's disc, it formed a dent quite circular on the

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limb. This we took for internal contact at egress = $10^h 17^m 11^s \cdot 1$ Vizagapatam mean time (civil reckoning). The planet's bisection was observed=at $10^h 19^m 38^s \cdot 6$, and the external contact at egress at $10^h 22^m 6^s \cdot 8$.

Observatory, Daba Gardens,
Vizagapatam.

Probable Early Observation of an Immersion of Titan. By Rev. S. J. Johnson.

The observation of a disappearance of *Titan* in *Saturn's* shadow (an event which might again have been witnessed this evening but for intervening clouds), made by Dawes in 1862, was regarded at the time as unique. But in Simonelli's "Scientia Eclipsium," vol. iv. p. 180, there seems to be mention of such a phenomenon being noticed by J. Cassini in 1715. The passage runs as follows: "IV Satelles 1711 die 12 Augusti spectante Blanchino per horam et amplius non apparuit cœlo serenissimo. Certior hujusmodi eclipsis observata fuit a C. J. Cassino in quarto satellite die 25 Martii an. 1715, hor. 11."

Melplash Vicarage, Dorset,
June 6.

Data for computing the positions of the Satellites of Jupiter, 1891. *With Tables of the Inequalities.* By A. Marth.

The selection of the plane of *Jupiter's* equator, in preference to that of the orbit, as the fundamental plane, to which the positions of the satellites are to be referred, offers upon examination such obvious advantages that it is not easy to understand why it has not been adopted long ago in all computations connected with the planet's system.

Let γ and Γ denote the inclination and node of the orbit of a satellite in reference to the adopted fundamental plane, v and l the satellite's true and mean longitude in the orbit, a its mean distance from the planet's centre, $r = a\rho$ its radius vector, v' and b its longitude and latitude in reference to the fundamental plane, $L + 180°$ and B the corresponding jovicentric longitude and latitude of the Earth, Δ its distance, $\Lambda + 180°$, B and R the analogous coordinates of the Sun. Referring the position of the satellite to three rectangular axes passing through the planet's centre, of which the z axis is the prolongation of Δ, while the x axis is in the fundamental plane, the jovicentric rectangular and polar coordinates of the satellite are, if σ is the

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